

WHAT IS CLAIMED IS:

1. A process cartridge adapted to be detachably attached to a body of an image forming apparatus, comprising:

5 an image bearing member;

developing means for developing an electrostatic image formed on said image bearing member by using developer to form a developer image on said image bearing member; and

10 developer charging means for charging residual developer on said image bearing member disposed downstream, with respect to a moving direction of said image bearing member, of a transferring position at which said developer image is transferred onto a
15 transfer destination member and upstream, with respect to the moving direction of said image bearing member, of a position at which the electrostatic image is formed on said image bearing member, said developer charging means being disposed in such a way
20 that it can be in contact with said image bearing member, and said developer charging means being movable in a direction substantially the same as a longitudinal direction of said image bearing member upon charging said residual developer;

25 wherein in the direction substantially the same as the longitudinal direction of said image bearing member, letting L_1 (mm) be a developing width of said

developing means, letting L_2 (mm) be a contact width
of said developer charging means with said image
bearing member, and letting d (mm) be a width of
movement of said developer charging means, the
5 following condition is satisfied:

$$L_1 + d \leq L_2.$$

2. A process cartridge according to claim 1,
further comprising a charging device that charges
10 said image bearing member for allowing formation of
said electrostatic image, wherein letting L_3 (mm) be
a charging width of said charging device in the
direction substantially the same as the longitudinal
direction of said image bearing member, the following
15 condition is satisfied:

$$L_1 + 2d \leq L_3.$$

3. A process cartridge according to claim 1,
wherein said body of the apparatus has transferring
20 means for transferring said developer image onto said
transfer destination member at said transferring
position, and wherein letting L_4 (mm) be a
transferring width of said transferring means in the
direction substantially the same as the longitudinal
25 direction of said image bearing member, the following
condition is satisfied:

$$L_1 + 2d \leq L_4.$$

4. A process cartridge according to claim 1,
wherein letting L5 (mm) be a length of chargeable
portion of said image bearing member in the direction
5 substantially the same as the longitudinal direction
of said image bearing member, the following condition
is satisfied:

$$L2 \leq L5 - d.$$

10 5. A process cartridge according to claim 2,
wherein letting L5 (mm) be a length of a chargeable
portion of said image bearing member in the direction
substantially the same as the longitudinal direction
of the image bearing member, the following condition
15 is satisfied:

$$L3 \leq L5.$$

6. A process cartridge according to claim 1,
wherein said body of the apparatus has transferring
20 means for transferring said developer image onto said
transfer destination member at said transferring
position and cleaning means for removing developer on
said transfer destination member, and wherein letting
L6 (mm) be a cleaning width of said cleaning means in
25 the direction substantially the same as the
longitudinal direction of the image bearing member,
the following condition is satisfied:

$$L1 + 2d \leq L6.$$

7. A process cartridge according to claim 1,
wherein upon charging said residual developer, said
5 developer charging means can reciprocate in the
direction substantially the same as the longitudinal
direction of said image bearing member.

8. A process cartridge according to claim 1,
10 wherein a DC voltage having charge polarity same as
normal charge polarity of the developer is applied to
said developer charging means.

9. A process cartridge according to claim 1,
15 wherein said developer charging means has a fiber
brush portion that is in contact with said image
bearing member.

10. A process cartridge according to claim 1,
20 wherein said developing means is capable of
recovering residual developer on said image bearing
member.

11. A process cartridge according to claim 1,
25 wherein said charging device is disposed in contact
with said image bearing member.

12. A process cartridge according to claim 1 or 2, wherein an oscillating voltage is applied to said charging device.

5 13. A process cartridge according to claim 12, wherein said charging device reduces a charge amount of developer remaining on said image bearing member.

10 14. A process cartridge according to claim 1, further comprising second developer charging means for charging residual developer on said image bearing member with charge polarity reverse to normal charge polarity of developer that is disposed downstream, with respect to the moving direction of said image bearing member, of said transferring position and upstream, with respect to the moving direction of said image bearing member, of said developer charging means, said second developer charging means being disposed in such a way that it can be in contact with
15 said image bearing member, and said second developer charging means being movable in the direction substantially the same as a longitudinal direction of said image bearing member.

20 15. A process cartridge according to claim 14, wherein said second developer charging means is capable of reciprocating in the direction

substantially the same as the longitudinal direction of the image bearing member.

16. A process cartridge according to claim 14,
5 wherein said second developer charging means has a fiber brush portion that is in contact with said image bearing member.

17. A process cartridge according to claim 14,
10 wherein a contact width of said second developer charging means and said image bearing member is substantially the same as a contact width of said developer charging means and said image bearing member in the direction substantially the same as the
15 longitudinal direction of said image bearing member, and a width of movement of said second developer charging means is substantially the same as the width of movement of said developer charging means..

20 18. An image forming apparatus comprising:
an image bearing member
developing means for developing an electrostatic image formed on said image bearing member by using developer to form a developer image on said image
25 bearing member; and
developer charging means for charging residual developer on said image bearing member disposed

downstream, with respect to a moving direction of
said image bearing member, of a transferring position
at which said developer image is transferred onto a
transfer destination member and upstream, with
5 respect to the moving direction of said image bearing
member, of a position at which the electrostatic
image is formed on said image bearing member, said
developer charging means being disposed in such a way
that it can be in contact with said image bearing
10 member, and said developer charging means being
movable in a direction substantially the same as a
longitudinal direction of said image bearing member
upon charging said residual developer;

wherein in the direction substantially the same
15 as the longitudinal direction of said image bearing
member, letting $L1$ (mm) be a developing width of said
developing means, letting $L2$ (mm) be a contact width
of said developer charging means with said image
bearing member, and letting d (mm) be a width of
20 movement of said developer charging means, the
following condition is satisfied:

$$L1 + d \leq L2.$$

19. An image forming apparatus according claim
25 18, further comprising a charging device that charges
said image bearing member for allowing formation of
said electrostatic image, wherein letting $L3$ (mm) be

a charging width of said charging device in the direction substantially the same as the longitudinal direction of said image bearing member, the following condition is satisfied:

5
$$L1 + 2d \leq L3.$$

20. An image forming apparatus according to claim 18 further comprising transferring means for transferring said developer image onto said transfer destination member at said transferring position, wherein letting $L4$ (mm) be a transferring width of said transferring means in the direction substantially the same as the longitudinal direction of said image bearing member, the following condition is satisfied:

15
$$L1 + 2d \leq L4.$$

21. An image forming apparatus according to claim 18, wherein letting $L5$ (mm) be a length of chargeable portion of said image bearing member in the direction substantially the same as the longitudinal direction of said image bearing member, the following condition is satisfied:

20
$$L2 \leq L5 - d.$$

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22. An image forming apparatus according to claim 19, wherein letting $L5$ (mm) be a length of a

chargeable portion of said image bearing member in the direction substantially the same as the longitudinal direction of the image bearing member, the following condition is satisfied:

5 $L3 \leq L5.$

23. An image forming apparatus according to claim 18 further comprising transferring means for transferring said developer image onto said transfer destination member at said transferring position and cleaning means for removing developer on said transfer destination member, wherein letting $L6$ (mm) be a cleaning width of said cleaning means in the direction substantially the same as the longitudinal direction of the image bearing member, the following condition is satisfied:

$L1 + 2d \leq L6.$

24. An image forming apparatus according to claim 18 further comprising a carrying member for carrying said transfer destination member and conveying it to said transferring position, transferring means for transferring said developer image onto said transfer destination member at said transferring position and cleaning means for removing developer on said image bearing member, wherein letting $L6$ (mm) be a cleaning width of said cleaning

means in the direction substantially the same as the longitudinal direction of said image bearing member, the following condition is satisfied:

$$L1 + 2d \leq L6.$$

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25. An image forming apparatus according to claim 18, wherein upon charging said residual developer, said developer charging means can reciprocate in the direction substantially the same as the longitudinal direction of said image bearing member.

26. An image forming apparatus according to claim 18, wherein a DC voltage having charge polarity same as normal charge polarity of the developer is applied to said developer charging means.

27. An image forming apparatus according to claim 18, wherein said developer charging means has a fiber brush portion that is in contact with said image bearing member.

28. An image forming apparatus according to claim 18, wherein said developing means is capable of recovering residual developer on said image bearing member.

29. An image forming apparatus according to claim 18, wherein said charging device is disposed in contact with said image bearing member.

5 30. An image forming apparatus according to claim 18 or 19, wherein an oscillating voltage is applied to said charging device.

31. An image forming apparatus according to
10 claim 30, wherein said charging device reduces a charge amount of developer remaining on said image bearing member.

32. An image forming apparatus according to
15 claim 18, further comprising second developer charging means for charging residual developer on said image bearing member with charge polarity reverse to normal charge polarity of developer disposed downstream, with respect to the moving
20 direction of said image bearing member, of said transferring position and upstream, with respect to the moving direction of said image bearing member, of said developer charging means, said second developer charging means being disposed in such a way that it
25 can be in contact with said image bearing member, and said second developer charging means being movable in the direction substantially the same as a

longitudinal direction of said image bearing member.

33. An image forming apparatus according to
claim 32, wherein said second developer charging
5 means is capable of reciprocating in the direction
substantially the same as the longitudinal direction
of the image bearing member.

34. An image forming apparatus according to
10 claim 32, wherein said second developer charging
means has a fiber brush portion that is in contact
with said image bearing member.

35. An image forming apparatus according to
15 claim 32, wherein a contact width of said second
developer charging means and said image bearing
member is substantially the same as a contact width
of said developer charging means and said image
bearing member in the direction substantially the
20 same as the longitudinal direction of said image
bearing member, and a width of movement of said
second developer charging means is substantially the
same as the width of movement of said developer
charging means.

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36. An image forming apparatus according to
claim 18 provided with a plurality of image forming

stations each of which having said image bearing member, said developing means and said developer charging means, wherein developer images are transferred from the image bearing members of the
5 respective image forming stations onto said transfer destination member that moves through the image forming stations.

37. An image forming apparatus according to
10 claim 36, wherein said transfer destination member is an intermediate transferring member, and said developer images are transferred from said intermediate transferring member onto a transferring material.

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38. An image forming apparatus according to claim 36, wherein said transfer destination member is a transferring material, and a transferring material carrying member that carries the transferring
20 material moves through said image forming stations.

39. An image forming apparatus according to claim 36, wherein said image forming stations form developer images of different colors on said transfer
25 destination member respectively.